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II. *An Account of an Aurora Borealis seen in Ireland in September 1725 ; in a Letter from Arthur Dobbs, Esq; to his Brother the Reverend Mr. Richard Dobbs, Fellow of Trinity-College, Dublin.*

*Castle Dobbs, Sept. 29, 1725.*

I Here send you an Account of an *Aurora Borealis*, which I saw here the 24<sup>th</sup>, 25<sup>th</sup>, and 26<sup>th</sup> Instant, with Reflections upon it; which, if compar'd with others, or the same view'd at other Places, may in some measure contribute to clear up the nature of it.

I observ'd, that the Theatre of Light forming an irregular variable Curve, was, as at most times formerly, from E. N. E. to W. N. W. the Horizon and whole Hemisphere serene, little or no Wind, what there was, seem'd Northerly. The seeming Dawn, or Stage of Light generally continu'd in an irregular Curve; the one Point in the two first Nights whilst I observ'd it, began near the Horizon, near N.N.E. the other Point was at W.N.W. the Height of the Arch not exceeding 20 Degrees, in which there seem'd to be a continual Dawn: Under that Field of Light seem'd to be a dark Cloud, which, however, was a clear Sky, not filled with that luminous Vapour; because all the Stars appear'd distinctly and twinkling thro' it. Whenever that Light rose about 10 Degrees higher, to about 30 Degrees, then Flashes, or Coruscations follow'd alternately, and seem'd to be Pillars or Beams of Light, which follow'd or succeeded one another, and by that means

means seem'd to move and change with one another, by the Succession of Light and Darkneſs, according to the Flaſhes. When the lighted Vapour roſe higher to about 40 or 45 Degrees, then the Appearance alter'd ; and inſtead of Beams, or Pillars of Light, as when lower, there were Flaſhes like thoſe attending Exploſions, wherein faint Colours of Red, Green and Yellow appeared, but not very vivid ; and upon each Exploſion it would ſpread upwards towards the Zenith, in the Appearance of thin enlighten'd Clouds, and immediately diſappear. On the 26<sup>th</sup>, about 9 at Night, one of theſe irregular Arches of Light had got up to the Zenith, the lower Points being near E. N. E. and W. S. W. I then ſaw it for a conſiderable time, at leaſt a quarter of an hour, and it had been there for ſome time before I ſaw it. I could diſtinctly obſerve all the different Appearances, according to its Altitude in the Hemisphere, *viz* the lower part (being within 12 or 14 Degrees, as near as I could compute) was a conſtant fixed Light, equal to the Light of the Edge of a white Cloud in the Day-time, when the Sun ſhines on it. As it roſe higher, I could obſerve it ſomewhat weaker, and could perceive the Motion of the Pillars or Beams of Light after each Flaſh, which ſeemed by that means to move. Somewhat higher again, at about 40 Degrees, the Flaſhes were like Exploſions of great Guns, with the faint Colours obſerved as before ; but the Coruſcations or Flaſhes from thence to the Zenith, expanded at every Flaſh, like a broad, thin, white Cloud, of which ſome faint View could be ſeen after each Exploſion for ſome time : And after all the Exploſions were over, there remain'd a thin duſky Vapour in and near the Zenith, and all along the Arch from Eaſt to Weſt, from 14 to 20 Degrees broad, which undulated and mov'd like a ſtormy Sea, the Motion coming from

from the S.S.E. and so lessen'd till it appear'd no brighter than the Milky Way, but more like a very thin Cloud or Mist, thro' which I could perceive the Stars. At the same time I saw another thin Cloud, having the same Appearance, Arch-ways, to the Southward, at about the Height of 40 Degrees, which I suppose had been another, which had been over, and had moved thither from the Northward before I went out : And during the whole time there were lesser Lights towards the North, but dispersed here and there, and not forming any large Body of Light. During the whole time, the Hemisphere was clear, except a few very small Clouds near the Horizon ; and when any moved into the enlighten'd Arch, they broke the Connexion , so that the Light was above them : At the same time it froze hard each Night.

From these Observations, I suppose that the *Aurora Borealis* is a thin Nitro-sulphureous Vapour rais'd in our Atmosphere considerably higher than the Clouds, which is discontinued in several Places by the interspers'd Air, and which by Pressure and Motion is kindled ; and perhaps the Explosion of one may by its Shock and Motion contribute to kindle the next ; by which means they go off one after another, till the whole Vapour within their Influence is discharged, and then the Light disappears, and the thin Smoak appears, and undulates, according to the Motion in that part of the Atmosphere. And hence I think, most of the Appearances may be solv'd : For  $1\frac{1}{2}$ , As to the continu'd Light near the Horizon, they being at a great distance from us, and nearly in a Line, all these Explosions may seem as a continued Light : When these approach nearer to us, and by consequence appear higher in our Hemisphere, we observe the Motion in each Flash, and still seeing them laterally, yet somewhat breaking the  
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Continuity of the Light ; they (by the Reflection of the Vapour floating in the Atmosphere, and being not reflected, where the Air betwixt them is free of those Vapours) may appear as Pillars : And as the Flash below and beyond them moves (as it kindles and expands) so they seem to move, and perhaps are thock'd at the same time by the Motion ; but afterwards, when they are nearer, and raised to the Altitude of 40 Degrees, we get somewhat under them, and see the Expansion of the Explosion, which appearing somewhat globular, gives the faint Colours observed above, the Light not being intense enough to make them vivid ; and afterwards when they rise to, or near the Zenith, they are nighest to us, and then expand very wide at each Flash, like little Clouds : And I think, the great Objection of their appearing in the Northern Part of the Hemisphere, and seldom or never in the Southern, is in some measure answer'd by the Appearance on the 26th ; since at least half of the Arch was in the Southern Part of the Hemisphere ; and perhaps the Reason why the Light is not seen near the Horizon, in the Southern Part of the Hemisphere, may be this, that in clear serene Weather, the Wind being generally near the North, Objects from thence are much more distinctly view'd, and at a greater distance than from the South ; and 'tis generally known, that Lands at a great distance are most distinctly seen, when the Winds blow from them.

And perhaps a cold Northerly freezing Air may be needful to kindle the Vapours, when a contrary Motion above (higher in the Atmosphere) may carry the Sulphureous Vapour, which falling down from the Nitrous Vapour may be kindled. Which, I suppose, form the Undulations of the Sinoak after the  
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Explosion, which seemed, as above, like a stormy Sea moving from the S.S.E. Note, The Barometer was low for some Days before and after it.

I am, &c.

*Arthur Dobbs.*

III. *An Account of the Aurora Borealis that appear'd Oct. 8. 1726. In a Letter to the Publisher from the Reverend Dr. Langwith, Rector of Petworth in Suffex.*

THE Northern Lights have been so common in all Places of late Years, that tho' I have often seen them here, I did not think it worth while to write to you about them ; but those that appear'd on *Saturday* the 8<sup>th</sup> of the last Month, were too remarkable to be pass'd over in Silence. They began about Sun-set ; but I heard nothing of them till between 7 and 8. When I went out, I observ'd a Stream of Light almost due West, which was about seven or eight Degrees broad, and extended it self upwards about 35 or 40 Degrees. I had not a free Prospect of the Western Horizon, and so cannot tell what its Appearance was below. It was not perpendicular to the Horizon, but inclined a few Degrees towards the South. This Stream was of a dusky Red towards the North, but pale on the other side, and seemed to have a faint Mixture of the Prismatick Colours in it.